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Job No.: CTCE/BBMP/W.No.08/KRIDL /STEEL/2014-15 03.06.2014

TEST REPORT ON REINFORCEMENT STEEL

Client	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	:	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	:	AEE/KH/666/2014-15 Dated: 02.06.2014
Date of Test	:	03.06.2014
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	514	557	13.25	O.K	O.K

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Job No.: CTCE/BBMP/W.No.08/KRIDL/AGG/2014-15 : 03.06.2014

TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/KH/666/2014-15 Dated: 02.06.2014

Date of Testing : 03.06.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	185	1.85	1.85	98.15	95-100
20	6050	60.50	62.35	37.65	30-70
10	2515	25.15	87.50	12.50	10-35
4.75	850	8.50	96.00	4.00	0-5

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/Gradation/2014-15

28.06.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : AEE/KH/666/2014-15 Dated: 02.06.2014

Date of Testing : 28.06.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7935**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	160	160	2.0	98.0	95-100
22.4	2650	2810	35.4	64.6	60-80
11.2	1210	4020	50.7	49.3	40-60
4.75	1180	5200	65.5	34.5	25-40
2.36	855	6055	76.3	23.7	15-30
0.600	800	6855	86.4	13.6	8-22
0.075	700	7555	95.2	4.8	0-8

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/AIV/2014-15 30.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/666/2014-15 Dated: 02.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	30.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	301	
4	Aggregate Impact value = percent fines	21.11	21.20	
	100* (W_2/W_1)%			**21.16**

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Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/S-T/2014-15 30.06.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/666/2014-15 Dated: 02.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	30.06.2014

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Result : Flakiness Index = **12.39%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index **26.29%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AIV/2014-15 14.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/666/2014-15 Dated: 02.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.84	20.94	20.89

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Shape_T/2013-14 : 14.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: AEE/KH/666/2014-15 Dated: 02.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 14.07.2014

Result : Flakiness Index = **12.38%**

Elongation Index = **13.98%**

Result : Combined Flakiness & Elongation index **26.36%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Stripping/2014-15 16.07.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the work	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/666/2014-15 Dated: 02.06.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.07.2014

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

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Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AGG/2014-15 16.07.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Maruthinagara, BB Layout, Bhadrappa Layout and Shanthivana Cross Road in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	AEE/KH/666/2014-15 Dated: 02.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	16.07.2014

Total Weight of Sample: **5150** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	360	7.0	6.99	93.01	90-100	
4.75	2605	50.6	57.57	42.43	35-51	
2.36	620	12.0	69.61	30.39	24-39	
1.18	510	9.9	79.51	20.49	15-30	
0.3	485	9.4	88.93	11.07	9-19	
0.075	300	5.8	94.76	5.24	3-8	

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	360	6.9	6.86	93.14	90-100	
4.75	2585	49.2	56.10	43.90	35-51	
2.36	630	12.0	68.10	31.90	24-39	
1.18	485	9.2	77.33	22.67	15-30	
0.3	365	7.0	84.29	15.71	9-19	
0.075	480	9.1	93.43	6.57	3-8	

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